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JPH8 - 254253

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CLAIMS

[Claim(s)]

[Claim 1] The tensioner main part which has the slide contact side where the portion of the chain between chain wheels ****s. The rib which reinforces this tensioner main part. It is the chain tensioner equipped with the above, and carries out having arranged the aforementioned back-up-plate section along with the aforementioned rib, having made the aforementioned insertion member into the core material using the insertion member which has in one the back-up-plate section which met in the direction which intersects surface sink prevention Itabe and this surface sink prevention Itabe, almost in parallel [Itabe / surface sink prevention / aforementioned] with the aforementioned slide contact side, and having carried out insert molding with synthetic resin as the feature.

[Claim 2] from the synthetic resin which the above-mentioned insertion member strengthened with the glass fiber -- becoming -- this insertion -- the chain tensioner according to claim 1 characterized by carrying out insert molding by synthetic resin homogeneous as the synthetic resin of a member

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention is widely applied to the chain which transmits turning effort to the cam shaft of an automobile and a motorcycle, and relates to the chain tensioner made of a resin which needs the thermal resistance and abrasion resistance which are used for the vibration isolation of the chain wrapped around the chain wheel.

[0002]

[Description of the Prior Art] There are some which are indicated by JP,3-2952,U as a conventional chain tensioner. As shown in drawing 10 and drawing 11, this chain tensioner 30 is equipped with the shoe 32 made of synthetic resin with which the pieces 36 and 37 of side engagement of the couple of the shape of L character engaged from the both sides of the metal arm 31 used as the base and the piece 34 of an edge hook of the shape of U character which engages with chain run leader 31a of an arm 31 were formed.

[0003]

[Problem(s) to be Solved by the Invention] In order to use the shoe 32 made of synthetic resin which has the slide contact side 45 where Chain C ****s in the case of this conventional chain tensioner 30, to need the metal arm 31 of another object with this and to attach the shoe 32 made of synthetic resin to this arm 31, the piece 34 of an edge hook of the shape of U engaged character is required, and there was a trouble that it was difficult to secure the intensity of this piece 34 of an edge hook.

[0004] Moreover, if thickness of a rib 43 is made 60% or more to the thickness of the tensioner main part 44, since the depression 46 called a surface sink into the portion of the slide contact side 45 where a chain ****s will occur, in order to dent in the slide contact side 45 and to make it 46 not arise in carrying out injection molding of the chain tensioner 40 to one by synthetic resin, as shown in drawing 12, there was a trouble that the thickness of a rib 43 was restricted and sufficient intensity could not be secured.

[0005] this invention is made in view of such a conventional fault, and the piece of an edge hook of the shape of a metal arm or U character becomes unnecessary, a rib is made heavy-gage, it is a thing and it aims [can aim at improvement in on the strength easily, and] at offering the chain tensioner which can really be fabricated.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention according to claim 1 In the chain tensioner equipped with the tensioner main part which has the slide contact side where the portion of the chain between chain wheels ****s, and the rib which reinforces this tensioner main part The insertion member which has in one the back-up-plate section which met in the direction which intersects surface sink prevention Itabe and this surface sink prevention Itabe is used. It is characterized by having arranged the aforementioned back-up-plate section along with the aforementioned rib, having made the aforementioned insertion member into the core material almost in parallel [Itabe / surface sink prevention / aforementioned] with the aforementioned slide contact side, and carrying out insert molding with synthetic resin. moreover -- from the synthetic resin to which the above-mentioned insertion member strengthened this invention according to claim 2 with the glass fiber in the chain tensioner according to claim 1 -- becoming -- this insertion -- it is characterized by carrying out insert molding by synthetic resin homogeneous as the synthetic resin of a member

[0007]

[Function] The insertion member which has in one the back-up-plate section which met in the direction which intersects surface sink prevention Itabe and this surface sink prevention Itabe is used for this invention. To parallel, mostly surface sink prevention Itabe in the slide contact side where a chain ****s and by having arranged the back-up-plate section along with a rib, having made the insertion member into the core material, and having carried out insert molding with synthetic resin Even if it makes a rib heavy-gage, while surface sink prevention Itabe can prevent surface sink generating and can make a rib heavy-gage, it makes it possible to fully reinforce with the back-up-plate section.

[0008]

[Example] The example of this invention is explained in detail, referring to a drawing. Drawing 1 is the side elevation showing an example of the busy condition of a chain tensioner. The chain 4 wrapped around chain wheels 2 and 3 is arranged at the portion which seceded from chain wheels 2 and 3, and a chain tensioner 1 is used in order to prevent pressing down a chain 4 from an outside and vibrating.

[0009] The perspective diagram and drawing 3 which show the chain tensioner which drawing 2 requires for the example of this invention are the cross-sectional view. a chain tensioner 1 -- an insertion -- considered as the core material, it used by carrying out a member 5, insert molding was carried out with the polyamide resin selected from 66 nylon, 46 nylon, etc. which are marketed from tradename nylon, and one is equipped with the tensioner main part 6 which has the slide contact side 8 where a chain 4 ****s, and the rib 7 which met in the direction which intersects a right angle mostly at this

[0010] and the chain tensioner 1 -- an insertion -- surface sink prevention Itabe 11 of a member 5 -- the slide contact side 8 -- almost -- parallel -- and an insertion -- the back-up-plate section 12 of a member 5 is arranged along with the rib 7, and it has bent to convex with small curvature to the portion of the chain 4 with which the tensioner main part 6 whole including the slide contact side 8 corresponds

[0011] Moreover, a chain tensioner 1 has in one both the guides 9 and 9 that made and projected the right angle mostly to the slide contact side 8 in the both-sides section of the tensioner main part 6, and continued along with the longitudinal direction in the uniform square cross section, and guides a chain 4 by both these guides 9 and 9.

[0012] Drawing 4 is the perspective diagram showing the insertion member concerning the example of this invention. an insertion -- as extrusion molding of the steel plate is carried out, it is manufactured and it is shown in drawing 3 , a member 5 is equipped with surface sink prevention Itabe 11 with width of face narrower than the tensioner main part 6, and both the back-up-plates sections 12 and 12 that have the cross-section size settled even in the mid-position of a rib 7 along the direction which intersects a right angle mostly to this surface sink prevention Itabe 11, and is making the shape of a channel of a KO typeface cross section by these

[0013] moreover, an insertion -- both ends 13 and 14 have projected [surface sink prevention Itabe 11] the member 5 from the ends of the tensioner main part 6 by which injection molding was carried out with the resin as most was laid underground into polyamide resin so that it may be mostly located in the center, and shown in drawing 2 and rib 7 of the tensioner main part 6

[0014] The forming method of the chain tensioner concerning the above-mentioned example of this invention is explained.

** an insertion -- manufacture a member 5 by extrusion molding so that the longitudinal direction of a chain tensioner 1 may be met

[0015] ** it is shown in drawing 5 -- as -- injection molding -- public funds -- the predetermined position corresponding to the crevice 17 which constitutes the cavity of type 16 -- doubling -- an insertion -- fix a member 5 to metal mold 16 in this case, an insertion -- since it is fixed to metal mold at both ends 13 and 14, although a member 5 serves as the form where both ends 13 and 14 project after injection molding of a chain tensioner 1, since these both ends 13 and 14 do not constitute the slide contact side 8, it does not have the performance top problem of a chain tensioner 1

[0016] ** By the polyamide resin selected from 66 nylon, 46 nylon, etc., carry out injection molding and complete a chain tensioner 1.

[0017] according to the above-mentioned example of this invention -- the insertion made from a steel plate with cheap extrusion molding, since insert molding of the chain tensioner 1 is carried out as a core material using a member 5 the ** which does not use a shoe as another object -- the chain-tensioner whole -- one -- as a thing -- a low cost -- it can fabricate -- an insertion, since surface sink prevention Itabe 11 of a member 5 prevents surface sink generating of the slide contact side 8 Since a rib 7 can be made heavy-gage, without taking into consideration a relation with the thickness of the tensioner main part 6, it is possible to fully raise the intensity of a chain tensioner 1.

[0018] moreover, this case -- the insertion made from a steel plate -- since the back-up-plate section 12 of a member 5 functions as reinforcing materials, the synthetic-resin material used for a chain tensioner 1 becomes possible [using the high resin of sliding nature], even if a hot on-the-strength fall is large

[0019] an insertion -- the product made of polyamide resin which could carry out press forming of the member 5 from the steel plate, replaced with the product made from a steel plate, and embedded and strengthened the glass fiber -- carrying out -- an insertion -- you may carry out insert molding of the chain tensioner 1 with polyamide resin homogeneous as the synthetic resin which constitutes a member 5 thus -- if it carries out, since it will really fabricate for a homogeneous material -- an insertion -- there is an advantage that the junction nature of a member 5 and the polyamide resin around this improves remarkably

[0020] In addition, deformation various in the range which is not limited by the above-mentioned example and does not deviate from the summary is possible for this invention. For example, drawing 6 - drawing 8 show the modification of the above-mentioned example, attach the same sign to the same portion, and omit duplication

explanation: it is shown in drawing 6 -- as -- an insertion -- the glass reinforced plastics of T typeface cross section is also employable as a member 5

[0021] moreover, an insertion -- the cross-section configuration of a member 5 can also be considered as the shape of a hollow pipe which has a square cross section, as may process it into the back-up-plate section 12, and the ups-and-downs portions 12a and 12b are formed, as are shown in drawing 7 , and shown in two-sheet polymerization-like T typeface cross section and drawing 8 , a bonding strength with surrounding synthetic resin is raised and it is shown in drawing 9

[0022]

[Effect of the Invention] The insertion member which has in one the back-up-plate section which met in the direction which intersects surface sink prevention Itabe and this surface sink prevention Itabe is used for this invention according to claim 1. To parallel, mostly surface sink prevention Itabe in the slide contact side where a chain ****s and by having arranged the back-up-plate section along with a rib, having made the insertion member into the core material, and having carried out insert molding with synthetic resin Since surface sink prevention Itabe prevents surface sink generating even if it makes a rib heavy-gage, a rib can be made heavy-gage and the effect that it can make it possible to fully reinforce with the back-up-plate section, an insertion member can be made into a core material, and the whole chain tensioner can really be fabricated is done so. from the synthetic resin which the insertion member strengthened with this invention according to claim 2 from the glass fiber -- becoming -- this insertion -- the junction nature of an insertion member and the synthetic resin of the circumference improves remarkably by having carried out insert molding by synthetic resin homogeneous as the synthetic resin of a member

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TECHNICAL FIELD

[Industrial Application] this invention is widely applied to the chain which transmits turning effort to the cam shaft of an automobile and a motorcycle, and relates to the chain tensioner made of a resin which needs the thermal resistance and abrasion resistance which are used for the vibration isolation of the chain wrapped around the chain wheel.

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PRIOR ART

[Description of the Prior Art] There are some which are indicated by JP,3-2952,U as a conventional chain tensioner. As shown in drawing 10 and drawing 11 , this chain tensioner 30 is equipped with the shoe 32 made of synthetic resin with which the pieces 36 and 37 of side engagement of the couple of the shape of L character engaged from the both sides of the metal arm 31 used as the base and the piece 34 of an edge hook of the shape of U character which engages with chain run leader 31a of an arm 31 were formed.

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EFFECT OF THE INVENTION

[Effect of the Invention] Using the insertion member which has in one the back-up-plate section which met in the direction which intersects surface sink prevention Itabe and this surface sink prevention Itabe in this invention according to claim 1, almost in parallel with the slide contact side where a chain ****s surface sink prevention Itabe, by having arranged the back-up-plate section along with a rib, having made the insertion member into the core material, and having carried out insert molding with synthetic resin, even if it makes a rib heavy-gage, surface sink prevention Itabe prevents surface sink generating. Therefore, a rib can be made heavy-gage and the effect that it can make it possible to fully reinforce with the back-up-plate section, an insertion member can be made into a core material, and the whole chain tensioner can really be fabricated is done so. from the synthetic resin which the insertion member strengthened with this invention according to claim 2 from the glass fiber -- becoming -- this insertion -- the junction nature of an insertion member and the synthetic resin of the circumference improves remarkably by having carried out insert molding by synthetic resin homogeneous as the synthetic resin of a member

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In order to use the shoe 32 made of synthetic resin which has the slide contact side 45 where Chain C ***** in the case of this conventional chain tensioner 30, to need the metal arm 31 of another object with this and to attach the shoe 32 made of synthetic resin to this arm 31, the piece 34 of an edge hook of the shape of U engaged character is required, and there was a trouble that it was difficult to secure the intensity of this piece 34 of an edge hook.

[0004] Moreover, if thickness of a rib 43 is made 60% or more to the thickness of the tensioner main part 44, since the depression 46 called a surface sink into the portion of the slide contact side 45 where a chain ***** will occur, in order to dent in the slide contact side 45 and to make it 46 not arise in carrying out injection molding of the chain tensioner 40 to one by synthetic resin, as shown in drawing 12 , there was a trouble that the thickness of a rib 43 was restricted and sufficient intensity could not be secured.

[0005] this invention is made in view of such a conventional fault, and the piece of an edge hook of the shape of a metal arm or U character becomes unnecessary, a rib is made heavy-gage, it is a thing and it aims [can aim at improvement in on the strength easily, and] at offering the chain tensioner which can really be fabricated.

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MEANS

[Means for Solving the Problem] It carries out being the chain tensioner equipped with the following according to claim 1 in order to attain the above-mentioned purpose, having arranged the aforementioned back-up-plate section along with the aforementioned rib using the insertion member which has in one the back-up-plate section which met in the direction which intersects surface sink prevention Itabe and this surface sink prevention Itabe almost in parallel [Itabe / surface sink prevention / aforementioned] with the aforementioned slide contact side, having made the aforementioned insertion member into the core material, and having carried out insert molding with synthetic resin as the feature. The tensioner main part which has the slide contact side where the portion of the chain between chain wheels ****s. The rib which reinforces this tensioner main part. moreover -- from the synthetic resin to which the above-mentioned insertion member strengthened this invention according to claim 2 with the glass fiber in the chain tensioner according to claim 1 -- becoming -- this insertion -- it is characterized by carrying out insert molding by synthetic resin homogeneous as the synthetic resin of a member

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OPERATION

[Function] In this invention, using the insertion member which has in one the back-up-plate section which met in the direction which intersects surface sink prevention Itabe and this surface sink prevention Itabe, almost in parallel with the slide contact side where a chain ****s surface sink prevention Itabe, the back-up-plate section has been arranged along with a rib, the insertion member was made into the core material, and insert molding was carried out with synthetic resin. Therefore, even if it makes a rib heavy-gage, while surface sink prevention Itabe can prevent surface sink generating and can make a rib heavy-gage, it makes it possible to fully reinforce with the back-up-plate section.

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EXAMPLE

[Example] The example of this invention is explained in detail, referring to a drawing. Drawing 1 is the side elevation showing an example of the busy condition of a chain tensioner. The chain 4 wrapped around chain wheels 2 and 3 is arranged at the portion which seceded from chain wheels 2 and 3, and a chain tensioner 1 is used in order to prevent pressing down a chain 4 from an outside and vibrating.

[0009] The perspective diagram and drawing 3 which show the chain tensioner which drawing 2 requires for the example of this invention are the cross-sectional view. a chain tensioner 1 -- an insertion -- considered as the core material, it used by carrying out a member 5, insert molding was carried out with the polyamide resin selected from 66 nylon, 46 nylon, etc. which are marketed from tradename nylon, and one is equipped with the tensioner main part 6 which has the slide contact side 8 where a chain 4 ****s, and the rib 7 which met in the direction which intersects a right angle mostly at this

[0010] and the chain tensioner 1 -- an insertion -- surface sink prevention Itabe 11 of a member 5 -- the slide contact side 8 -- almost -- parallel -- and an insertion -- the back-up-plate section 12 of a member 5 is arranged along with the rib 7, and it has bent to convex with small curvature to the portion of the chain 4 with which the tensioner main part 6 whole including the slide contact side 8 corresponds

[0011] Moreover, a chain tensioner 1 has in one both the guides 9 and 9 that made and projected the right angle mostly to the slide contact side 8 in the both-sides section of the tensioner main part 6, and continued along with the longitudinal direction in the uniform square cross section, and guides a chain 4 by both these guides 9 and 9.

[0012] Drawing 4 is the perspective diagram showing the insertion member concerning the example of this invention. an insertion -- as extrusion molding of the steel plate is carried out, it is manufactured and it is shown in drawing 3 , a member 5 is equipped with surface sink prevention Itabe 11 with width of face narrower than the tensioner main part 6, and both the back-up-plates sections 12 and 12 that have the cross-section size settled even in the mid-position of a rib 7 along the direction which intersects a right angle mostly to this surface sink prevention Itabe 11, and is making the shape of a channel of a KO typeface cross section by these

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[0014] The forming method of the chain tensioner concerning the above-mentioned example of this invention is explained.

** an insertion -- manufacture a member 5 by extrusion molding so that the longitudinal direction of a chain tensioner 1 may be met

[0015] ** it is shown in drawing 5 -- as -- injection molding -- public funds -- the predetermined position corresponding to the crevice 17 which constitutes the cavity of type 16 -- doubling -- an insertion -- fix a member 5 to metal mold 16 in this case, an insertion -- since it is fixed to metal mold at both ends 13 and 14, although a member 5 serves as the form where both ends 13 and 14 project after injection molding of a chain tensioner 1, since these both ends 13 and 14 do not constitute the slide contact side 8, it does not have the performance top problem of a chain tensioner 1

[0016] ** By the polyamide resin selected from 66 nylon, 46 nylon, etc., carry out injection molding and complete a chain tensioner 1.

[0017] according to the above-mentioned example of this invention -- the insertion made from a steel plate with cheap extrusion molding, since insert molding of the chain tensioner 1 is carried out as a core material using a member 5 the ** which does not use a shoe as another object -- the chain-tensioner whole -- one -- as a thing -- a low cost -- it can fabricate -- an insertion, since surface sink prevention Itabe 11 of a member 5 prevents surface sink generating of the slide contact side 8 Since a rib 7 can be made heavy-gage, without taking into consideration a relation with the thickness of the tensioner main part 6, it is possible to fully raise the intensity of a chain tensioner 1.

[0018] moreover, this case -- the insertion made from a steel plate -- since the back-up-plate section 12 of a

member 5 functions as reinforcing materials, the synthetic-resin material used for a chain tensioner 1 becomes possible [using the high resin of sliding nature], even if a hot on-the-strength fall is large

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[0020] In addition, deformation various in the range which is not limited by the above-mentioned example and does not deviate from the summary is possible for this invention. For example, drawing 6 - drawing 8 show the modification of the above-mentioned example, attach the same sign to the same portion, and omit duplication explanation. it is shown in drawing 6 -- as -- an insertion -- the glass reinforced plastics of T typeface cross section is also employable as a member 5

[0021] moreover, an insertion -- the cross-section configuration of a member 5 can also be considered as the shape of a hollow pipe which has a square cross section, as may process it into the back-up-plate section 12, and the ups-and-downs portions 12a and 12b are formed, as are shown in drawing 7 , and shown in two-sheet polymerization-like T typeface cross section and drawing 8 , a bonding strength with surrounding synthetic resin is raised and it is shown in drawing 9

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the side elevation showing an example of the busy condition of a chain tensioner.

[Drawing 2] It is the perspective diagram showing the chain tensioner concerning the example of this invention.

[Drawing 3] It is the cross-sectional view of the chain tensioner concerning the example of this invention.

[Drawing 4] It is the perspective diagram showing the insertion member concerning the example of this invention.

[Drawing 5] It is the view for explanation of the manufacture method of the chain tensioner concerning the example of this invention.

[Drawing 6] the insertion concerning the above-mentioned example of this invention -- it is the cross-sectional view showing the modification of a member

[Drawing 7] the insertion concerning the above-mentioned example of this invention -- it is the cross-sectional view showing the modification of a member

[Drawing 8] the insertion concerning the above-mentioned example of this invention -- it is the cross-sectional view showing the modification of a member

[Drawing 9] the insertion concerning the above-mentioned example of this invention -- it is the cross-sectional view showing the modification of a member

[Drawing 10] It is the side elevation showing the conventional chain tensioner.

[Drawing 11] It is the cross-sectional view of drawing 10 .

[Drawing 12] It is the cross-sectional view showing another conventional chain tensioner.

[Description of Notations]

1 Chain Tensioner

2 Three Chain wheel

4 Chain

5 Insertion -- Member

6 Tensioner Main Part

7 Rib

8 Slide Contact Side

11 Surface Sink Prevention Itabe

12 Back-Up-Plate Section

16 Metal Mold

17 Crevice

[Translation done.]

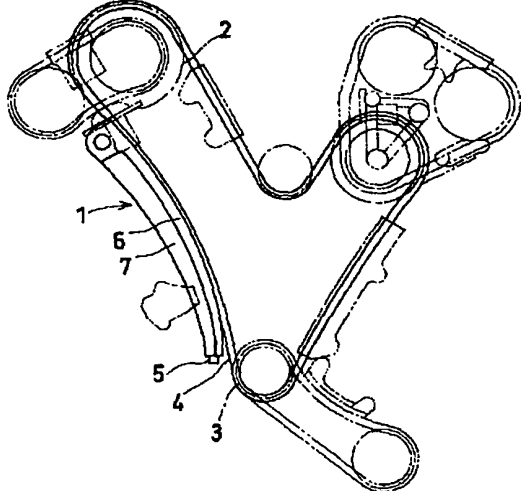
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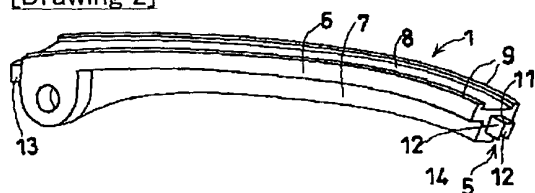
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DRAWINGS

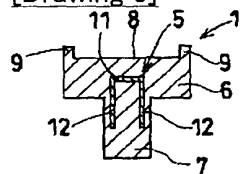
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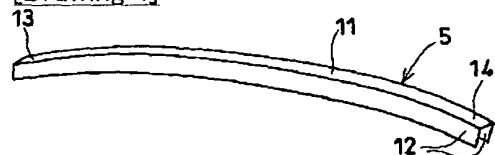
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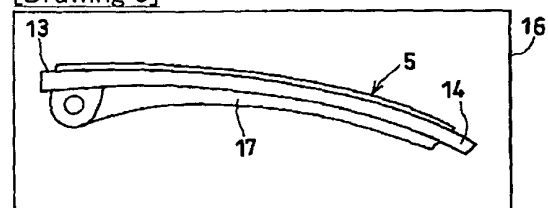
[Drawing 3]



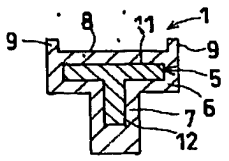
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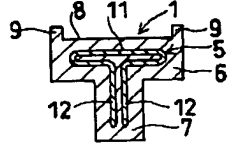
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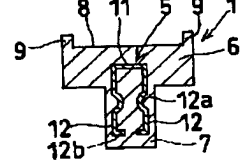
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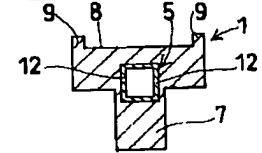
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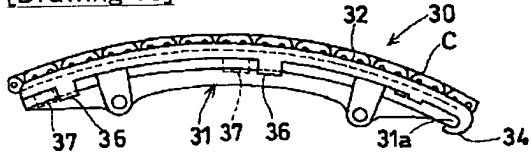
[Drawing 8]



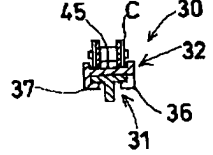
[Drawing 9]



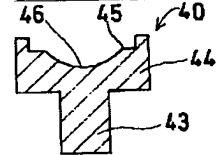
[Drawing 10]



[Drawing 11]



[Drawing 12]



(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平8-254253

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F 0 2 B 67/06			F 0 2 B 67/06	A

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(71) 出願人 000002082

スズキ株式会社

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会社内

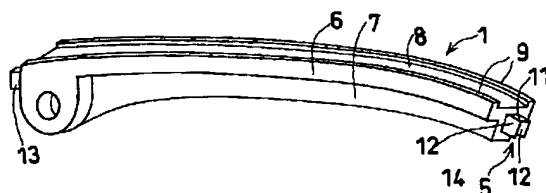
(74) 代理人 弁理士 奥山 尚男 (外4名)

(54) 【発明の名称】 チェーンテンショナ

(57) 【要約】

【目的】 一体成形を可能にし、リブを厚肉にして容易に強度を向上させる。

【構成】 チェーンホイール間にあるチェーンの部分が摺接する摺接面8を有するテンショナ本体6と、該テンショナ本体6に対し交差する方向に沿ったリブ7とを備えたチェーンテンショナ1において、ひけ防止板部11と該ひけ防止板部11と交差する補強板部12とを一体に有するインサート部材5を使用し、ひけ防止板部11を摺接面8にほぼ平行に、かつ補強板部12をリブ7に沿って配置し、インサート部材5を芯材とし合成樹脂をもってインサート成形してある。



【特許請求の範囲】

【請求項 1】 チェーンホイール間にあるチェーンの部分が摺接する摺接面を有するテンショナ本体と、該テンショナ本体を補強するリブとを備えたチェーンテンショナにおいて、ひけ防止板部及び該ひけ防止板部と交差する方向に沿った補強板部を一体に有するインサート部材を用い、前記ひけ防止板部を前記摺接面にほぼ平行に、かつ前記補強板部を前記リブに沿って配置し、前記インサート部材を芯材とし合成樹脂をもってインサート成形したことを特徴とするチェーンテンショナ。

【請求項 2】 上記インサート部材がガラス繊維で強化した合成樹脂からなり、該インサート部材の合成樹脂と同質の合成樹脂でインサート成形したことを特徴とする請求項 1 に記載のチェーンテンショナ。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、自動車及びオートバイのカム軸に回転力を伝達するチェーン等に広く適用され、チェーンホイールに巻掛けられたチェーンの振動防止のために用いられる耐熱性及び耐摩耗性を必要とする樹脂製のチェーンテンショナに関するものである。

【0002】

【従来の技術】従来のチェーンテンショナとしては、実開平 3-2952 号公報に開示されているようなものがある。図 10 及び図 11 に示すように、このチェーンテンショナ 30 は、ベースとなる金属製アーム 31 の両側から係合する L 字状の一对の側面係合片 36、37 と、アーム 31 のチェーン走行始端部 31a に係合する U 字状の端部フック片 34 とが形成された合成樹脂製のシュー 32 を備えている。

【0003】

【発明が解決しようとする課題】かかる従来のチェーンテンショナ 30 の場合、チェーン C が摺接する摺接面 45 を有する合成樹脂製シュー 32 を使用し、これとは別体の金属製アーム 31 を必要としており、このアーム 31 に合成樹脂製のシュー 32 を組付けるため、係合する U 字状の端部フック片 34 が必要であり、この端部フック片 34 の強度を確保するのが困難であるという問題点があった。

【0004】また、図 12 に示すように、チェーンテンショナ 40 を合成樹脂で一体に射出成形する場合には、リブ 43 の厚さをテンショナ本体 44 の厚さに対して 60% 以上にすると、チェーンが摺接する摺接面 45 の部分にひけと称する凹み 46 が発生するので、摺接面 45 に凹み 46 が生じないようにするためには、リブ 43 の厚さが制限されて十分な強度を確保できないという問題点があった。

【0005】本発明は、このような従来の欠点にかんがみなされものであって、金属製アームや U 字状の端部フック片が不要になり、リブを厚肉にして強度向上を容易

に図ることができ、一体成形が可能なチェーンテンショナを提供することを目的とする。

【0006】

【課題を解決するための手段】上記目的を達成するために、請求項 1 に記載の本発明は、チェーンホイール間にあるチェーンの部分が摺接する摺接面を有するテンショナ本体と、該テンショナ本体を補強するリブとを備えたチェーンテンショナにおいて、ひけ防止板部及び該ひけ防止板部と交差する方向に沿った補強板部を一体に有するインサート部材を用い、前記ひけ防止板部を前記摺接面にほぼ平行に、かつ前記補強板部を前記リブに沿って配置し、前記インサート部材を芯材とし合成樹脂をもってインサート成形したことを特徴とする。また、請求項 2 に記載の本発明は、請求項 1 に記載のチェーンテンショナにおいて、上記インサート部材がガラス繊維で強化した合成樹脂からなり、該インサート部材の合成樹脂と同質の合成樹脂でインサート成形したことを特徴とする。

【0007】

【作用】本発明は、ひけ防止板部及び該ひけ防止板部と交差する方向に沿った補強板部を一体に有するインサート部材を用い、ひけ防止板部をチェーンが摺接する摺接面にほぼ平行に、かつ補強板部をリブに沿って配置し、インサート部材を芯材とし合成樹脂をもってインサート成形したことにより、リブを厚肉にしてもひけ防止板部がひけ発生を防ぎ、リブを厚肉にすることができるとともに、補強板部で十分に補強することを可能にする。

【0008】

【実施例】本発明の実施例について、図面を参照しながら詳細に説明する。図 1 はチェーンテンショナの使用状態の一例を示す側面図である。チェーンテンショナ 1 は、チェーンホイール 2、3 に巻掛けられたチェーン 4 がチェーンホイール 2、3 から離脱した部分に配置され、チェーン 4 を外側から押さえ振動するのを防止するために用いられる。

【0009】図 2 は本発明の実施例に係るチェーンテンショナを示す斜視図、図 3 はその横断面図である。チェーンテンショナ 1 は、インサート部材 5 を芯材として用い、商品名ナイロンで市販されている 66 ナイロンや 46 ナイロン等から選定したポリアミド樹脂をもってインサート成形し、チェーン 4 が摺接する摺接面 8 を有するテンショナ本体 6 と、これにほぼ直角に交差する方向に沿ったリブ 7 とを一体に備えている。

【0010】そして、チェーンテンショナ 1 は、インサート部材 5 のひけ防止板部 11 を摺接面 8 にほぼ平行に、かつインサート部材 5 の補強板部 12 をリブ 7 に沿って配設してあり、摺接面 8 を含むテンショナ本体 6 全体が対応するチェーン 4 の部分に対し小さな曲率にて凸状に曲がっている。

【0011】また、チェーンテンショナ 1 は、テンショ

ナ本体6の両側部に摺接面8に対しほぼ直角をなして突出し様な四角形断面にて長手方向に沿い連続した両ガイド9、9を一体に有し、この両ガイド9、9によってチェーン4を案内する。

【0012】図4は本発明の実施例に係るインサート部材を示す斜視図である。インサート部材5は、鋼板を押出成形して製造され、図3に示すように、テンショナ本体6よりも幅が狭いひけ防止板部11と、このひけ防止板部11に対しほぼ直角に交差する方向に沿いリブ7の中間位置までに収まる断面寸法を有する両補強板部12、12とを備え、これらによってコ字形断面のチャンネル状をなしている。

【0013】また、インサート部材5は、ひけ防止板部11がテンショナ本体6のほぼ中央に位置するように大部分がポリアミド樹脂中に埋設され、図2に示すように、樹脂をもって射出成形されたテンショナ本体6及びリブ7の両端より両端部13、14が突出している。

【0014】本発明の上記実施例に係るチェーンテンショナの成形方法について説明する。

①インサート部材5を、チェーンテンショナ1の長手方向に沿うように、押出成形によって製造する。

【0015】②図5に示すように、射出成形用金型16のキャビティを構成する凹部17に対応する所定位置に合わせて、インサート部材5を金型16に固定する。この場合、インサート部材5は、両端部13、14で金型に固定されるため、チェーンテンショナ1の射出成形後、両端部13、14が突出する形となるが、この両端部13、14は摺接面8を構成しないので、チェーンテンショナ1の性能上問題がない。

【0016】③66ナイロン、46ナイロン等から選定したポリアミド樹脂によって射出成形し、チェーンテンショナ1を完成させる。

【0017】本発明の上記実施例によれば、押出成形の安価な鋼板製のインサート部材5を芯材として使用しチェーンテンショナ1をインサート成形するので、シュウを別体とせずチェーンテンショナ全体を一体ものとして低コストにて成形することができ、インサート部材5のひけ防止板部11が摺接面8のひけ発生を防ぐので、テンショナ本体6の厚さとの関係を考慮することなく、リブ7を厚肉にすることができ、チェーンテンショナ1の強度を十分に向上させることが可能である。

【0018】また、この場合、鋼板製インサート部材5の補強板部12が補強材として機能するので、チェーンテンショナ1に使用する合成樹脂材料は高温における強度低下が大きくても、摺動性の高い樹脂を使用することが可能となる。

【0019】インサート部材5は、鋼板からプレス成形してもよく、鋼板製に代えてガラス繊維を埋め込んで強化したポリアミド樹脂製とし、インサート部材5を構成する合成樹脂と同質のポリアミド樹脂をもってチェーン

テンショナ1をインサート成形してもよい。このようにすると、同質の素材で一体成形するので、インサート部材5とこれの周囲のポリアミド樹脂との接合性が著しく向上するという利点がある。

【0020】なお、本発明は、上記実施例によって限定されるものではなく、その要旨から逸脱しない範囲で種々の変形が可能である。例えば、図6～図8は上記実施例の変形例を示し、同一部分に同一符号を付けて重複説明を省略する。図6に示すように、インサート部材5としてT字形断面のガラス強化プラスチックを採用することもできる。

【0021】また、インサート部材5の断面形状は、図7に示すように2枚重合状のT字形断面、図8に示すように補強板部12に加工を施して曲折部分12a、12bを設け、周囲の合成樹脂との接合強度を向上させてもよく、図9に示すように、四角形の断面を有する中空パイプ状とすることも可能である。

【0022】

【発明の効果】請求項1に記載の本発明は、ひけ防止板部及び該ひけ防止板部と交差する方向に沿った補強板部を一体に有するインサート部材を用い、ひけ防止板部をチェーンが摺接する摺接面にはほぼ平行に、かつ補強板部をリブに沿って配置し、インサート部材を芯材とし合成樹脂をもってインサート成形したことにより、リブを厚肉にしてもひけ防止板部がひけ発生を防ぐので、リブを厚肉にすることができ、補強板部で十分に補強することを可能にし、インサート部材を芯材にしてチェーンテンショナ全体を一体成形することができるという効果を奏する。請求項2に記載の本発明では、インサート部材がガラス繊維で強化した合成樹脂からなり、該インサート部材の合成樹脂と同質の合成樹脂でインサート成形したことにより、インサート部材とその周囲の合成樹脂との接合性が著しく向上する。

【図面の簡単な説明】

【図1】チェーンテンショナの使用状態の一例を示す側面図である。

【図2】本発明の実施例に係るチェーンテンショナを示す斜視図である。

【図3】本発明の実施例に係るチェーンテンショナの横断面図である。

【図4】本発明の実施例に係るインサート部材を示す斜視図である。

【図5】本発明の実施例に係るチェーンテンショナの製造方法の説明用図である。

【図6】本発明の上記実施例に係るインサート部材の変形例を示す横断面図である。

【図7】本発明の上記実施例に係るインサート部材の変形例を示す横断面図である。

【図8】本発明の上記実施例に係るインサート部材の変形例を示す横断面図である。

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【図9】本発明の上記実施例に係るインサート部材の変形例を示す横断面図である。

【図10】従来のチェーンテンショナを示す側面図である。

【図11】図10の横断面図である。

【図12】従来の別のチェーンテンショナを示す横断面図である。

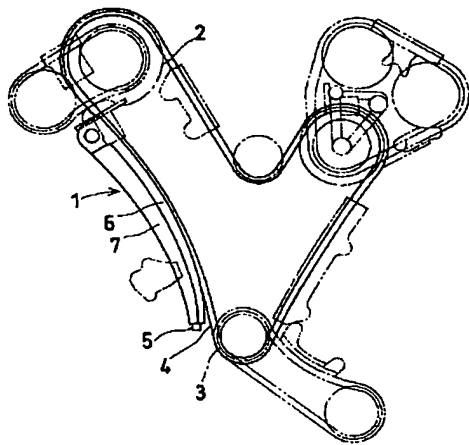
【符号の説明】

- 1 チェーンテンショナ
2, 3 チェーンホイール

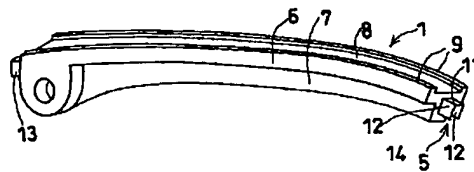
- * 4 チェーン
5 インサート部材
6 テンショナ本体
7 リブ
8 摺接面
11 ひけ防止板部
12 補強板部
16 金型
17 凹部

*10

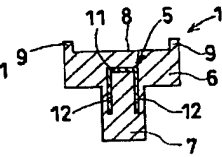
【図1】



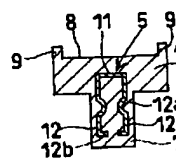
【図2】



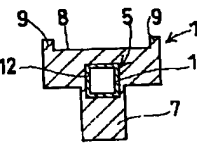
【図3】



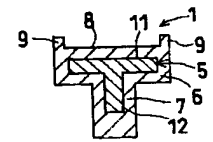
【図8】



【図9】



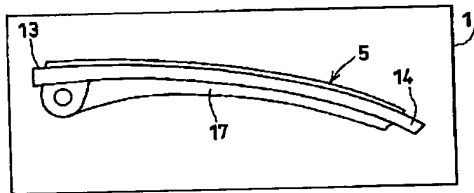
【図6】



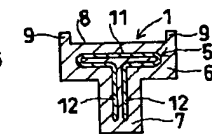
【図4】



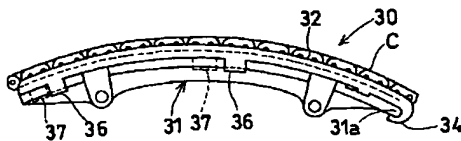
【図5】



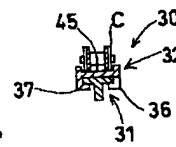
【図7】



【図10】



【図11】



【図12】

